

Message Text

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C O N F I D E N T I A L SECTION 1 OF 3 USNATO 2016

E.O. 11652: GDS
TAGS: MILI, NATO
SUBJ: AGENDA ITEM - CONFERENCE OF NATIONAL ARMAMENTS DIRECTORS
(CNAD), 22-24 APRIL 1975

SECDEF FOR ODDR&E(IP)-MR. BASIL AND OASD(I&L)IP-MR. CUFFE.
CSAF FOR ASAF(R&D)-COL STEERE. CNO FOR OP-098F (RADM ARMSTRONG).

REFS: A. AC/259-D/438, 9 APR 75.
B. AC/259-D/144, 4 APR 75.

REFERENCED DOCUMENTS HAVE BEEN ADDED TO CNAD AGENDA: C/438
WILL BE DISCUSSED UNDER AGENDA ITEM II(D) AND D/444 WILL BE
DISCUSSED UNDER AGENDA ITEM III. TEXTS OF DOCUMENTS ARE QUOTED
FOR INFO/ACTION. BEGIN TEXTS. AC/259-D/438, 9 APRIL 1975.

JOINT REPORT BY FRANCE AND THE UNITED KINGDOM ON CO-OPERATION
IN STUDIES OF FUTURE MEDIUM-RANGE SURFACE-TO-AIR SYSTEMS

NOTE BY THE SECRETARY

NATIONAL ARMAMENTS DIRECTORS WILL RECALL THAT AT THE
THIRTEENTH MEETING OF CNAD FRANCE, GERMANY, THE UNITED KINGDOM
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AND THE UNITED STATES HAD AGREED TO WORK TOGETHER TO LAY OUT
THE NECESSARY STUDIES OF THE POSSIBILITIES OF FUTURE SAMS BASED
ON FURTHER HAWK IMPROVEMENTS, ON SAM-D TECHNOLOGY, AND ON NEW
TECHNOLOGIES AND REPORT BACK WITHIN A YEAR(1).

2. IN COMPLIANCE WITH THIS PROPOSAL YOU WILL FIND ATTACHED THE TEXT OF A JOINT REPORT BY THE FRENCH AND UNITED KINGDOM AUTHORITIES ON THEIR STUDIES OF FUTURE MEDIUM-RANGE SURFACE-TO-AIR SYSTEMS.

3. YOU ARE PARTICULARLY INVITED TO NOTE THAT THIS CO-OPERATION IS SO ORGANIZED AS TO BE CAPABLE OF EXTENSION TO OTHER NATIONS SHOULD THEY SO DESIRE.

4. THIS REPORT WILL BE EXAMINED UNDER ITEM II(D) OF THE AGENDA OF THE NEXT CONFERENCE.

(SIGNED) A. TANSEVER

THIS DOCUMENT INCLUDES: 1 ANNEX

(1) AC/259-DS/13(FINAL), ITEM II(B)(4)

JOINT REPORT BY FRANCE AND UNITED KINGDOM ON CO-OPERATION IN STUDIES OF FUTURE MEDIUM-RANGE SURFACE-TO-AIR SYSTEMS

INTRODUCTION

1. THIS REPORT HAS BEEN PREPARED FOR THE CONFERENCE OF NATO NATIONAL ARMAMENT DIRECTORS AS AN INFORMATION DOCUMENT FOR THE MEETING ON AIR DEFENCE PROBLEMS PLANNED FOR APRIL 1975(1). IT CONSISTS OF AN UPDATING OF THE INFORMATION GIVEN IN OCTOBER 1973 AT THE JOINT PRESENTATION(2) BY FRANCE AND THE UNITED KINGDOM TO THE TRI-SERVICE GROUP ON AIR DEFENCE (AC/280(WG/III)) IN WHICH SEVERAL YEARS OF NATIONAL STUDIES AND SHARED ANGLO-FRENCH STUDIES DATING FROM EARLY 1972 WERE DESCRIBED.

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2. IN OCTOBER 1973 THE FRENCH AND UNITED KINGDOM DELEGATIONS SUBMITTED PROPOSALS TO THEIR RESPECTIVE SECRETARIES OF DEFENCE FOR THE JOINT EXECUTION BY FRANCE AND THE UNITED KINGDOM OF THE PRE-FEASIBILITY STUDIES ON FUTURE MEDIUM-RANGE SURFACE-TO-AIR SYSTEMS IN ANTICIPATION OF FURTHER STEPS IN DEVELOPMENT. WHEN THE SECRETARIES MET AT THE END OF 1973 THEY CONSIDERED THAT THE IMMEDIATE START ON A COMPLETE PROGRAMME WAS PREMATURE AND AGREED THAT, FOLLOWING A JOINT REVIEW AT THE BEGINNING OF 1974, A DECISION SHOULD BE TAKEN ON THE BEST WAY TO PROCEED. STEPS HAVE ACCORDINGLY BEEN TAKEN TO DRAW UP A PROGRAMME OF JOINT STUDIES ON A MORE LIMITED SCALE TO PROVIDE TECHNICAL INFORMATION AS A BASIS FOR FUTURE DECISIONS WHENEVER IT WAS CONSIDERED TIMELY TO MAKE THEM.

3. THE STUDIES OF FUTURE MEDIUM-RANGE SURFACE-TO-AIR
(.SAM) SYSTEMS HAVE BEEN DIVIDED BETWEEN A NUMBER OF COMPANIES
IN BOTH THE UNITED KINGDOM AND FRANCE. A CO-ORDINATING ROLE
AND THE CONDUCT OF SYSTEM STUDIES ARE BEING CARRIED OUT BY
THOMSON CSF AND BAC. THESE TWO COMPANIES MAINTAIN CLOSE CONTACT
WITH EACH OTHER AND WITH THE OTHER COMPANIES CONCERNED.

4. ANGLO-FRENCH CO-OPERATION IS SO ORGANIZED AS TO BE
CAPABLE OF EXTENSION TO OTHER COUNTRIES SHOULD THEY SO DESIRE
AND THE FRG HAS ATTENDED MEETINGS AS AN OBSERVER.

AVAILABLE ESTIMATES

5. THE WORK WHICH HAS BEEN CONDUCTED BY FRANCE AND THE
UNITED KINGDOM AND SHARED BETWEEN THEM ALLOWS THE FOLLOWING
ESTIMATES OF PERFORMANCE AND COST TO BE PUT FORWARD AS THE BEST
PRESENTLY AVAILABLE.

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PERFORMANCE

6. AS A CONSEQUENCE OF TECHNOLOGICAL PROGRESS WE CAN
ENVISAGE SYSTEMS FOR INTRODUCTION INTO SERVICE IN ABOUT 1990
WHOSE CHARACTERISTICS WOULD BE MUCH BETTER THAN THOSE OF CURRENT
EQUIPMENTS, PARTICULARLY IN TERMS OF:

- (A) RESISTANCE TO SATURATION,
- (B) PERFORMANCE IN AN ECM ENVIRONMENT.

THE TECHNICAL SOLUTIONS UNDER CONSIDERATION, WHICH WOULD EMPLOY
HIGH POWER RADAR TRANSMITTERS AND MODERN ANTENNA AND SIGNAL
PROCESSING TECHNIQUES, HAVE BEEN SHOWN IN PRINCIPLE TO BE

CAPABLE OF MEETING A REALISTIC PERFORMANCE SPECIFICATION IN THE PRESENCE OF THE ATTACK AND ECM SCENARIOS WHICH HAVE BEEN PREDICTED FOR THIS TIMEFRAME. CONSIDERABLE STUDY HAS ALREADY BEEN DIRECTED TO COMPARING THE RELATIVE MERITS OF THE SEVERAL POSSIBLE TECHNICAL SOLUTIONS. THE SYSTEM CONFIGURATIONS FALL INTO THREE GENERIC TYPES:

(A) THOSE IN WHICH SEMI-ACTIVE HOMING GUIDANCE IS EMPLOYED THROUGHOUT THE MISSILE TRAJECTORY,

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(B) THOSE IN WHICH A COMMAND PHASE IS FOLLOWED BY A SEMI-ACTIVE TERMINAL HOMING PHASE,

(C) THOSE IN WHICH A COMMAND PHASE IS FOLLOWED BY AN ACTIVE TERMINAL HOMING PHASE.

FURTHER, THE SURVEILLANCE RADAR MAY ACHIEVE ITS ANGULAR COVERAGE EITHER BY MECHANICAL ROTATION OR BY ELECTRONIC SCANNING OR BE A COMBINATION OF THE TWO. A SUMMARY OF THESE TECHNICAL APPROACHES IS GIVEN AT ANNEX. TO GIVE A QUANTITATIVE IMPRESSION OF THE IMPROVEMENT IN ECM RESISTANCE WHICH FUTURE EQUIPMENTS COULD OFFER, IT IS OF INTEREST TO NOTE THAT RADAR TRANSMITTER POWERS WOULD BE INCREASED BY AN ORDER OF MAGNITUDE, ANTENNA SIDE-LOBE LEVELS WOULD BE REDUCED BY AN ORDER OF MAGNITUDE, AND THE WIDTH OF THE ANTENNA MAIN BEAM IN ELEVATION WOULD BE REDUCED BY AN ORDER OF MAGNITUDE - ALL TO THE BENEFIT OF ECM RESISTANCE.

COSTS

7. PRELIMINARY RESULTS OF STUDIES TO DATE SUGGEST THAT THE MAJOR FACTORS LIKELY TO APPLY TO ANY FUTURE MSAM SYSTEM ARE AS SET OUT BELOW. THE PRODUCTION COSTS OF MISSILES AND GROUND EQUIPMENT WOULD HAVE APPROXIMATELY THE SAME MAGNITUDE (AT CONSTANT PRICES) AS THOSE OF THE PRESENT SYSTEMS. THESE ARE CRITICAL IN DECIDING THE EXTENT OF THE PRODUCTION RUN. THE DEVELOPMENT COSTS WOULD BE SPREAD OVER 10 YEARS AND ARE EXPECTED TO LIE BETWEEN 1 AND 2 BILLION FRENCH FRANCS (AT 1975 PRICES) DEPENDING ON THE COMPLEXITY OF THE SYSTEM SELECTED. CAREFUL CO-ORDINATION OF THE PREPARATORY WORK PRIOR TO THE DEVELOPMENT DECISION WOULD ENABLE THE COSTS TO BE KEPT TOWARDS THE LOWER LIMIT AND AN EFFICIENT MANAGEMENT SYSTEM WOULD ENSURE THAT COSTS DO NOT INCREASE DISPROPORTIONATELY THROUGH THE MULTIPLICITY OF CONTRIBUTING NATIONS. THUS THE COST TO EACH NATION WOULD BE SIGNIFICANTLY LESS THAN IF IT PURSUED DEVELOPMENT ON A NATIONAL BASIS. IT IS ALSO PROPOSED THAT THE DEVELOPMENT PROGRAMME SHOULD BE SUBJECTED TO A SERIES OF STAGES REVIEWS TO PROVIDE PARTICIPATING NATIONS WITH THE OPPORTUNITY TO RECONSIDER THEIR COMMITMENTS. ON THE BASIS OF A MINIMUM OF THREE PARTICIPATING COUNTRIES THE AVERAGE NATIONAL EXPENDITURE ON DEVELOPMENT IS

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NOT EXPECTED TO EXCEED 50 MILLION TO 100 MILLION PER YEAR FRENCH

FRANCS DEPENDING UPON THE SOLUTION CHOSEN.

PROPOSED COURSES

8. FOR A NEW SYSTEM TO BE INTRODUCED IN THE EARLY 1990S PRODUCTION DECISIONS WOULD NEED TO BE TAKEN LATE IN THE 1980S AND DEVELOPMENT WORK WOULD NEED TO PRECEDE PRODUCTION BY NOT LESS THAN 10 YEARS LEADING TO A START OF DEVELOPMENT IN 1977/78. THE PERIOD AVAILABLE BEFORE THE DEVELOPMENT DECISION

IS TAKEN SHOULD BE USED TO CO-ORDINATE THE PREPARATORY WORK (RESEARCH, GENERAL STUDIES ETC.) CURRENTLY BEING UNDERTAKEN IN THE VARIOUS COUNTRIES.

9. IT CAN BE SEEN THAT ONLY A VERY LIMITED TIME IS AVAILABLE FOR THIS WORK SINCE THE ANGLO-FRENCH STUDIES MUST BE COMPLETED AND THE POSSIBILITY OF THE PARTICIPATION OF OTHER EUROPEAN COUNTRIES IN A JOINT DEVELOPMENT PROGRAMME EXPLORED. THIS MUST BE FOLLOWED BY THE SUBMISSION OF AN AGREED COSTED PLAN FOR A STAGED DEVELOPMENT PROGRAMME. IN STEP WITH THESE ACTIVITIES THE OPERATIONAL REQUIREMENTS MUST BE AGREED BETWEEN THE COUNTRIES CONCERNED.

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10. DURING THE DEVELOPMENT CYCLE OF THE NEW SYSTEM LIMITED IMPROVEMENTS COULD ALSO BE MADE TO THE SURFACE-TO-AIR SYSTEMS

CURRENTLY IN SERVICE TO KEEP THE GENERAL AIR DEFENCE CAPABILITY IN STEP WITH THE ANTICIPATED EVOLUTION OF THE THREAT; FOR EXAMPLE THE ADAPTATION OF BLOODHOUND OR SEA/DART SYSTEMS TO DEAL WITH LONG-RANGE JAMMERS.

FOOTNOTES:

(1) AC/259-DX/13(FINAL), ITEM II(B)(4) DATED 14TH AUGUST, 1974.

(2) AC/280(WG/III)D/4 OF 20TH NOVEMBER, 1973 AND D/5 OF 27TH NOVEMBER, 1973.

TECHNICAL SOLUTIONS TO MEET THE MEDIUM SAM REQUIREMENT

MENTION WAS MADE IN THE MAIN TEXT OF THIS PAPER (PARAGRAPH 6) OF THE THREE GENERIC TYPES OF SAM SYSTEMS CONFIGURATION WHICH HAVE BEEN EXAMINED. THE CHARACTERISTICS OF SOME EXAMPLES OF THESE TYPES ARE OUTLINED IN ATTACHED TABLE. THIS TABLE ALSO MENTIONS TWO OTHER SYSTEMS FOR REFERENCE
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PURPOSES NAMELY IMPROVED HAWK AND THE US SAM D. THIS TABLE IS ALSO BEING USED BY THE TECHNICAL SUB-GROUP III OF AC/280.

MISSION COMMENT: ANNEX TO D/438 IS A ONE-PAGE TABLE WHICH IS NOT SUITABLE FOR TRANSMISSION DUE TO COMPLEXITY OF CHART. END COMMENT.

AC/259-D/444 (AC/224-D/349), 4 APRIL 1975.

AIRCREW ELECTRONIC WARFARE TACTICS FACILITY
NOTE BY THE CHAIRMAN OF NAFAG

REFERENCE: AC/259-DS/14(FINAL), PARAGRAPH V(A)(4)

AT THE MEETING OF NAFAG HELD ON 25TH AND 26TH MARCH, 1975 THE GROUP NOTED THE DECISION OF THE CNAD AT THE ABOVE REFERENCE AND AGREED TO SET UP A PROJECT GROUP ON AN AIRCREW ELECTRONIC WARFARE TACTICS FACILITY AS OUTLINED IN THE ANNEX ATTACHED.

2. HOWEVER, NAFAG WOULD ESPECIALLY DRAW THE ATTENTION OF THE CNAD TO THE PROBLEM MENTIONED IN PARAGRAPH 3 OF THE ANNEX WHICH IS CONCERNED WITH THE SITING OF THIS FACILITY, AND THAT AT PRESENT THERE ARE FEW OFFERS FROM THE NATIONS OF SUITABLE SITES FOR LOCATING THIS FACILITY. WITHOUT SUCH OFFERS PROGRESS WILL UNDOUBTEDLY BE DIFFICULT WITHIN THE PROJECT GROUP, AND THE ASSISTANCE OF THE NATIONAL ARMAMENTS DIRECTORS WOULD BE APPRECIATED.

3. THIS ITEM WILL BE DISCUSSED AT THE FORTHCOMING MEETING OF THE CNAD UNDER AGENDA ITEM III.

(SIGNED) B.P. FAABERG
(COLONEL, DANISH AIR FORCE)

PROJECT GROUP ON AIRCREW ELECTRONIC WARFARE TACTICS FACILITY

1. THE NAFAG HAVE NOTED THAT A REQUIREMENT FOR AN AIRCREW ELECTRONIC WARFARE TACTICS FACILITY HAS BEEN DEFINED IN CONSIDERABLE DETAIL IN DOCUMENT AC/224-D/335(#). COST FIGURES ARE GIVEN FOR DIFFERENT LEVELS OF CAPABILITY BETWEEN AN INITIAL CAPABILITY OF \$32 MILLION UP TO A FULL CAPABILITY OF BETWEEN \$68 MILLION AND \$92 MILLION (ALL FIGURES IN 1974 UNITED STATES DOLLARS).

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2. NAFAG HAVE NOTED THIS SPECIFICATION AND ALL THE NINE NATIONS REPRESENTED AT THE MEETING HELD ON 25TH MARCH, 1975 AGREED THAT THEY HAD NATIONAL NEEDS FOR AIRCREW ELECTRONIC WARFARE TRAINING AND WERE PREPARED TO CONSIDER MULTINATIONAL FINANCING BASED ON NATIONAL USAGE OF THE FACILITY.

3. ALTHOUGH THE REQUIREMENTS FOR THE FACILITY HAVE BEEN REFINED IN SOME DETAIL, FEW OFFERS HAVE BEEN MADE BY NATIONS FOR LOCATION OF THE FACILITY, AND THIS IS DEEMED TO BE A MOST IMPORTANT CONSIDERATION IN ANY FUNDING DISCUSSIONS.

4. HOWEVER, THE NINE NATIONS REPRESENTED (BELGIUM, CANADA, DENMARK, FRANCE, THE FEDERAL REPUBLIC OF GERMANY, ITALY, THE NETHERLANDS, THE UNITED KINGDOM AND THE UNITED STATES) HAVE AGREED TO SET UP AN OPEN ENDED PROJECT GROUP AND HAVE INVITED OTHER INTERESTED NATIONS TO JOIN.

5. THIS PROJECT GROUP WOULD BE BASED ON THE PROCEDURES DEFINED IN C-M(66)33(2ND REVISE). THE OPERATIONAL SPECIFICATION AND COSTS GIVEN IN DOCUMENT AC/224-D/335 FOR AN AIRCREW ELECTRONIC WARFARE TACTICS FACILITY WOULD SERVE AS A STARTING POINT FOR DISCUSSION.

6. THE PROJECT GROUP WOULD NEED TO BE SUPPORTED BY FINANCIAL AND FUNDING EXPERTS.

7. THE FINAL OBJECTIVE OF THE PROJECT GROUP WOULD BE TO DRAW UP A MEMORANDUM OF UNDERSTANDING BETWEEN THE COMMITTED NATIONS, AND REPORT TO NAFAG AT THEIR AUTUMN 1975 MEETING.

8. THE PROJECT GROUP WOULD ELECT THEIR OWN CHAIRMAN AND DEFINE THEIR TERMS OF REFERENCE IN GREATER DETAIL AT THEIR FIRST MEETING, WHICH WOULD BE HELD ON 14TH AND 15TH MAY, 1975 AT 10 A.M. AND 2:30 P.M. AT THE NATO HEADQUARTERS, BRUSSELS.

9. NAFAG AGREED TO PASS DETAILS OF THE PROJECT GROUP TO THE NATO EUROTRAINING GROUP TO KEEP THEM INFORMED OF NAFAG DECISIONS.

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(#) AC/224(SG/11)N/19 IS ALSO OF INTEREST.

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